



US009272870B2

(12) **United States Patent**  
**Stanton**

(10) **Patent No.:** **US 9,272,870 B2**  
(45) **Date of Patent:** **Mar. 1, 2016**

(54) **BRAKING WRAP DISPENSER**

(56) **References Cited**

(71) Applicant: **Pratt Corrugated Holdings, Inc.,**  
Conyers, GA (US)

(72) Inventor: **Christopher M. Stanton**, Peachtree  
City, GA (US)

(73) Assignee: **Pratt Corrugated Holdings, Inc.,**  
Conyers, GA (US)

U.S. PATENT DOCUMENTS

1,451,914 A	4/1923	Kongsrud
1,935,392 A	11/1933	Coninck
2,331,743 A	10/1943	Sullivan
4,179,081 A	12/1979	Parry
4,248,392 A	2/1981	Parry
4,339,022 A	7/1982	Hoover
4,372,500 A	2/1983	Saraisky
4,477,037 A	10/1984	Goldstein
4,484,717 A	11/1984	Goldstein

(Continued)

(\*) Notice: Subject to any disclaimer, the term of this  
patent is extended or adjusted under 35  
U.S.C. 154(b) by 218 days.

FOREIGN PATENT DOCUMENTS

DE	1924348	11/1970
DE	202004011730	11/2004

(Continued)

(21) Appl. No.: **14/108,881**

(22) Filed: **Dec. 17, 2013**

(65) **Prior Publication Data**

US 2015/0166285 A1 Jun. 18, 2015

OTHER PUBLICATIONS

Vestil Manufacturing; "Stretch Wrap Dispensers", located at <[http://www.vestilmfg.com/products/mhequip/stretch\\_wrap\\_dispensers.htm](http://www.vestilmfg.com/products/mhequip/stretch_wrap_dispensers.htm)>, Copyright 2014, accessed on Aug. 11, 2014, 2 pgs.

(Continued)

(51) **Int. Cl.**

**B65H 75/18** (2006.01)

**B65H 16/00** (2006.01)

**B65B 67/08** (2006.01)

(52) **U.S. Cl.**

CPC ..... **B65H 16/005** (2013.01); **B65B 67/085**  
(2013.01); **B65H 75/185** (2013.01)

(58) **Field of Classification Search**

CPC .... B65H 67/085; B65H 23/06; B65H 35/002;  
B65H 75/08; B65H 75/185; B65H 2402/412;  
B65H 2403/7251; B65H 2701/1752; B65H  
2701/1944

USPC ..... 242/405.1, 405.2, 405.3, 422.4, 588,  
242/588.2, 599.4, 597, 597.5, 597.6, 596.7

See application file for complete search history.

Primary Examiner — William A Rivera

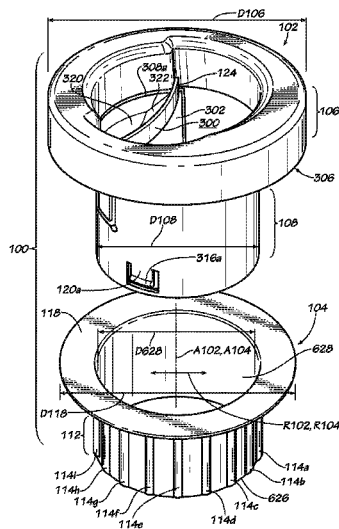
(74) Attorney, Agent, or Firm — Taylor English Duma LLP

(57)

**ABSTRACT**

A film dispensing apparatus for dispensing film from a film roll is disclosed that in certain embodiments has an exterior holding surface of a holding member that is concentric with the axis of rotation of a rotating member when looking at the apparatus along its radial direction. In other embodiments, the film dispensing apparatus includes a brake portion found in the interior of the holding member that is operatively associated with an interior holding surface such that when a user presses onto the interior holding surface with sufficient force, it causes the brake portion to flex and contact the rotating member, resulting in the film being dispensed with more tension as the user pulls on the apparatus to unwind the film.

**20 Claims, 12 Drawing Sheets**



## References Cited

8,317,124	B2	11/2012	Yu Chen	
8,468,778	B2	6/2013	Windheuser	
8,578,683	B2	11/2013	Smith	
8,616,490	B2	12/2013	Blok	
8,622,332	B2	1/2014	Bologna	
8,708,267	B2	4/2014	Morgan	
8,783,428	B2	7/2014	Beri	
03/0132336	A1	7/2003	Huang	
04/0084559	A1	5/2004	Fraser	
06/0032965	A1	2/2006	Yu Chen	
06/0237577	A1 *	10/2006	Chen .....	B65D 85/02 242/588
06/0278751	A1	12/2006	Yu Chen	
07/0151208	A1	7/2007	Huang	
08/0072538	A1	3/2008	Kohn et al.	
08/0258002	A1	10/2008	Migliaccio	
09/0044494	A1	2/2009	Northrup	
09/0127372	A1	5/2009	Saraisky	
09/0308968	A1	12/2009	Piotrowski et al.	
0/0044491	A1	2/2010	Ritchey et al.	
1/0095122	A1	4/2011	Yu Chen	
1/0233321	A1	9/2011	Yu Chen	
1/0284680	A1	11/2011	Lin	
3/0152384	A1	6/2013	Yu Chen	
4/0116004	A1	5/2014	Pace	

EP	0030572	6/1981
EP	0227564	7/1987
EP	0310291	4/1989
EP	0499761	8/1992
FR	2588841	5/1988
FR	2910887	12/2009
GB	2055345	3/1981
GB	2289039	11/1995
GB	2299321	10/1996
GB	2456801	7/2009
GB	2478933	9/2011
JP	H0769349	3/1995
TW	201026567	7/2010
WO	9500395	1/1995
WO	2007066194	6/2007

Goodwrappers; “Unitization products by Goodwrappers, include hand wrappers, replacement rolls, core handwrap, generic and disposable hand wrap”, Apr. 7, 2010, located at <[https://web.archive.org/web/20100407080537/http://www.goodwrappers.com/prod\\_unit.asp](https://web.archive.org/web/20100407080537/http://www.goodwrappers.com/prod_unit.asp)>.

Images of Braking Wrap Film Dispenser, the Dispenser publicly available prior to Dec. 17, 2012, 12 pgs.

\* cited by examiner

4,530,473	A	7/1985	Parry	
4,575,020	A	3/1986	Strout et al.	
4,600,163	A	7/1986	Hummel et al.	
4,659,031	A	4/1987	Saraisky	
4,706,442	A	11/1987	Riemenschneider	
4,722,493	A	2/1988	Parry et al.	
4,752,045	A	6/1988	Goldstein	
4,784,348	A	11/1988	McDonald	
4,817,762	A	4/1989	Powell	
4,834,312	A	5/1989	Riemenschneider, III	
4,872,623	A	10/1989	Parry et al.	
5,094,395	A	3/1992	Lambert	
5,135,179	A	8/1992	Morano	
5,150,852	A	9/1992	Hunt et al.	
5,186,376	A	2/1993	Scharf et al.	
5,203,517	A	4/1993	Parry et al.	
5,351,905	A	10/1994	Ferber	
5,409,177	A	4/1995	Parry et al.	
5,573,630	A	11/1996	Edney et al.	
5,664,739	A	9/1997	Black et al.	
5,915,642	A	6/1999	Davis	
5,927,635	A	7/1999	Black et al.	
5,938,142	A	8/1999	Halperin	
5,961,063	A	10/1999	Parry	
6,019,308	A	2/2000	Huang	
6,102,323	A	8/2000	Riemenschneider	
6,227,479	B1	5/2001	Dean et al.	
6,227,480	B1	5/2001	Huang	
6,398,150	B1	6/2002	Munter et al.	
6,491,252	B2 *	12/2002	Komatsu .....	B65H 75/08 242/596.1
6,508,430	B1	1/2003	Rodriguez	
6,517,023	B2	2/2003	Rodriguez	
6,651,918	B2	11/2003	Huang	
6,739,542	B1	5/2004	Prina et al.	
6,883,298	B2	4/2005	Gooding et al.	
6,926,225	B1	8/2005	Powers	
6,997,411	B2	2/2006	Kewin	
7,210,649	B2 *	5/2007	Yu Chen .....	B65D 85/02 242/405.3
7,380,744	B1	6/2008	Yu Chen	
7,438,254	B2	10/2008	Oettershagen	
7,543,426	B1	6/2009	Phero	
7,552,891	B2	6/2009	Huang	
7,665,686	B2	2/2010	Becker et al.	
D612,179	S	3/2010	Huang	
7,726,600	B2	6/2010	Huang	
7,762,490	B1	7/2010	Yu Chen	
7,866,596	B2	1/2011	Yamada	
7,900,421	B2	3/2011	Smith	
7,937,915	B2	5/2011	Kohn et al.	
8,104,705	B2	1/2012	Yu Chen	
8,308,102	B2	11/2012	Lin	

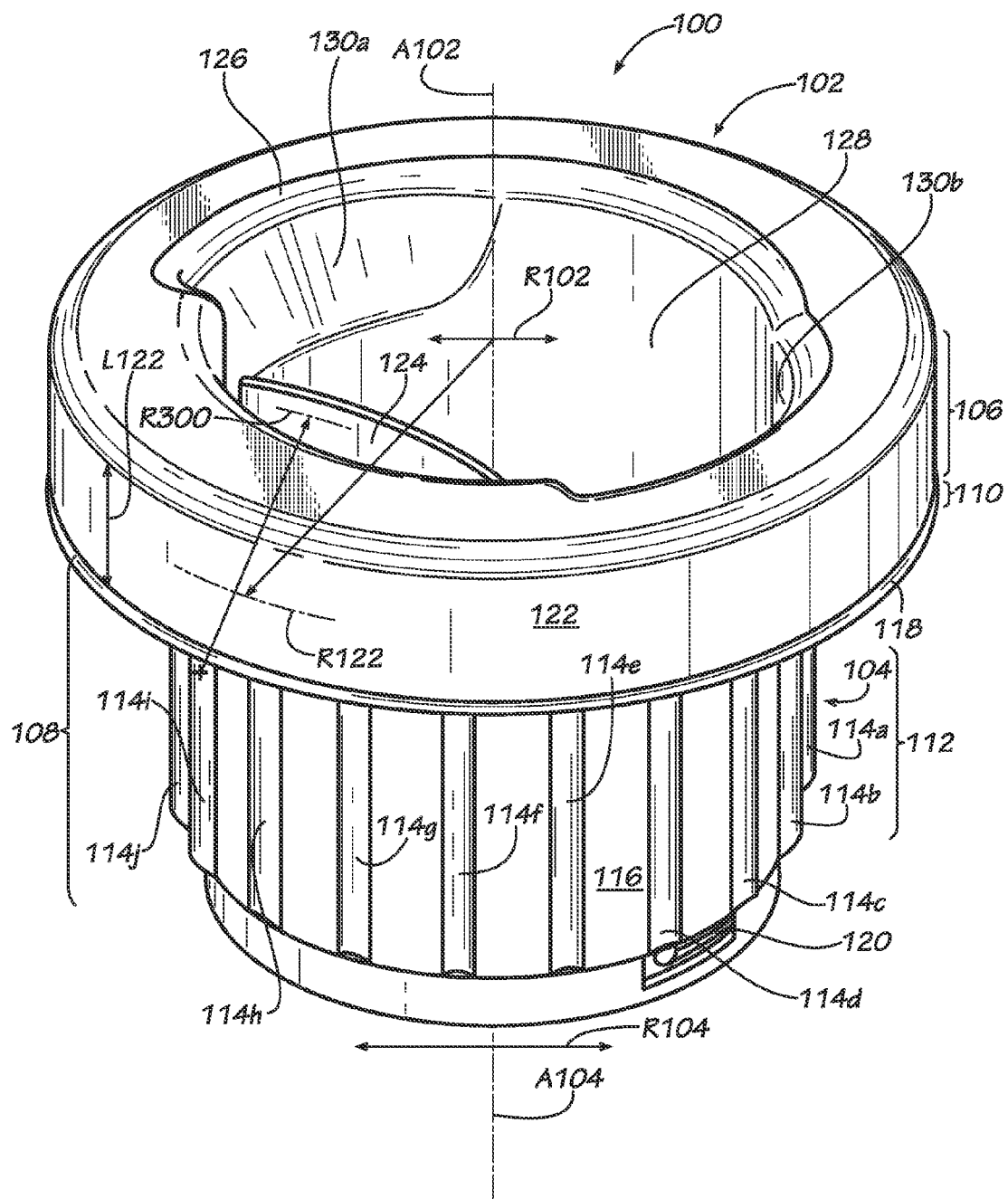


FIG. 1

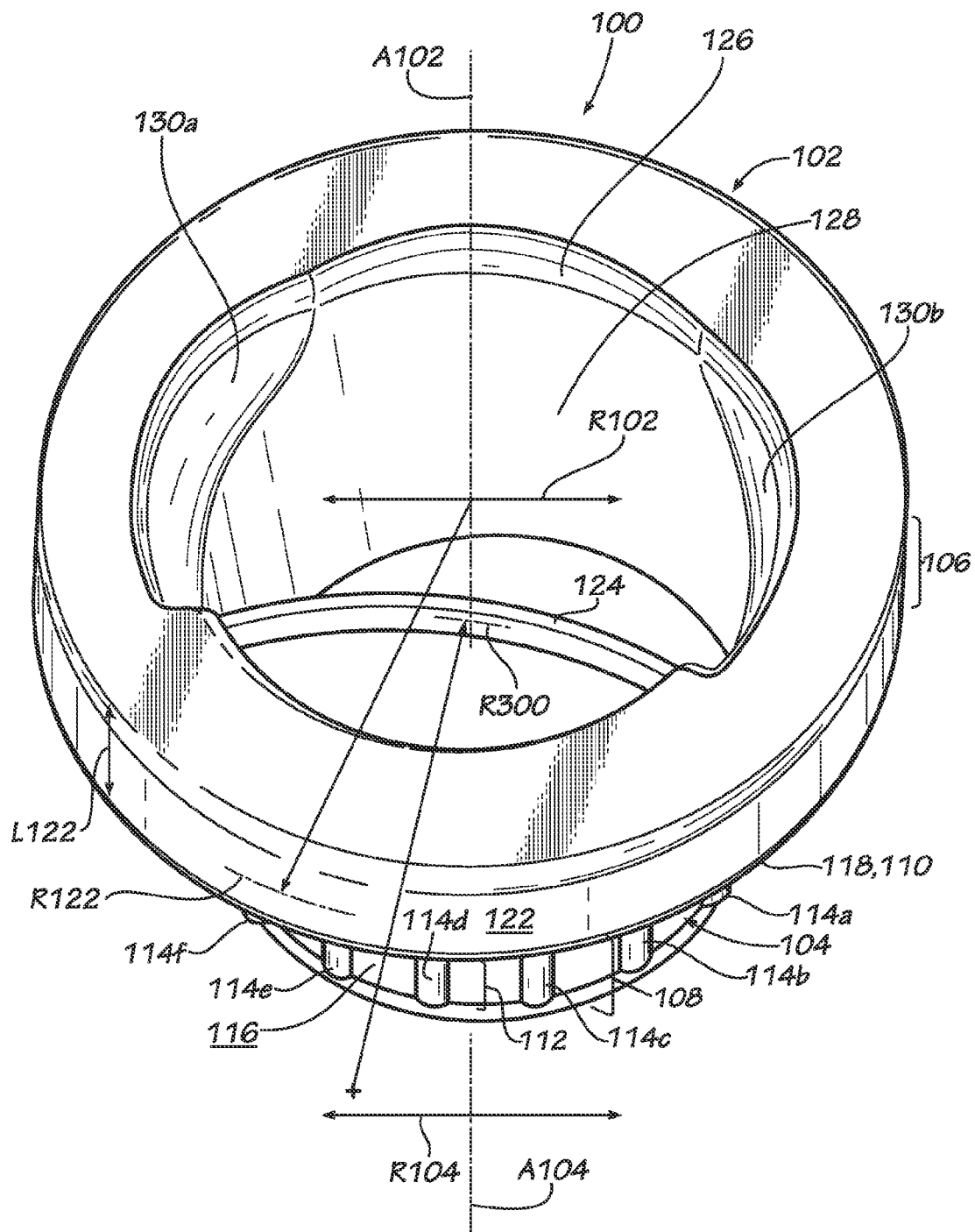


FIG. 2

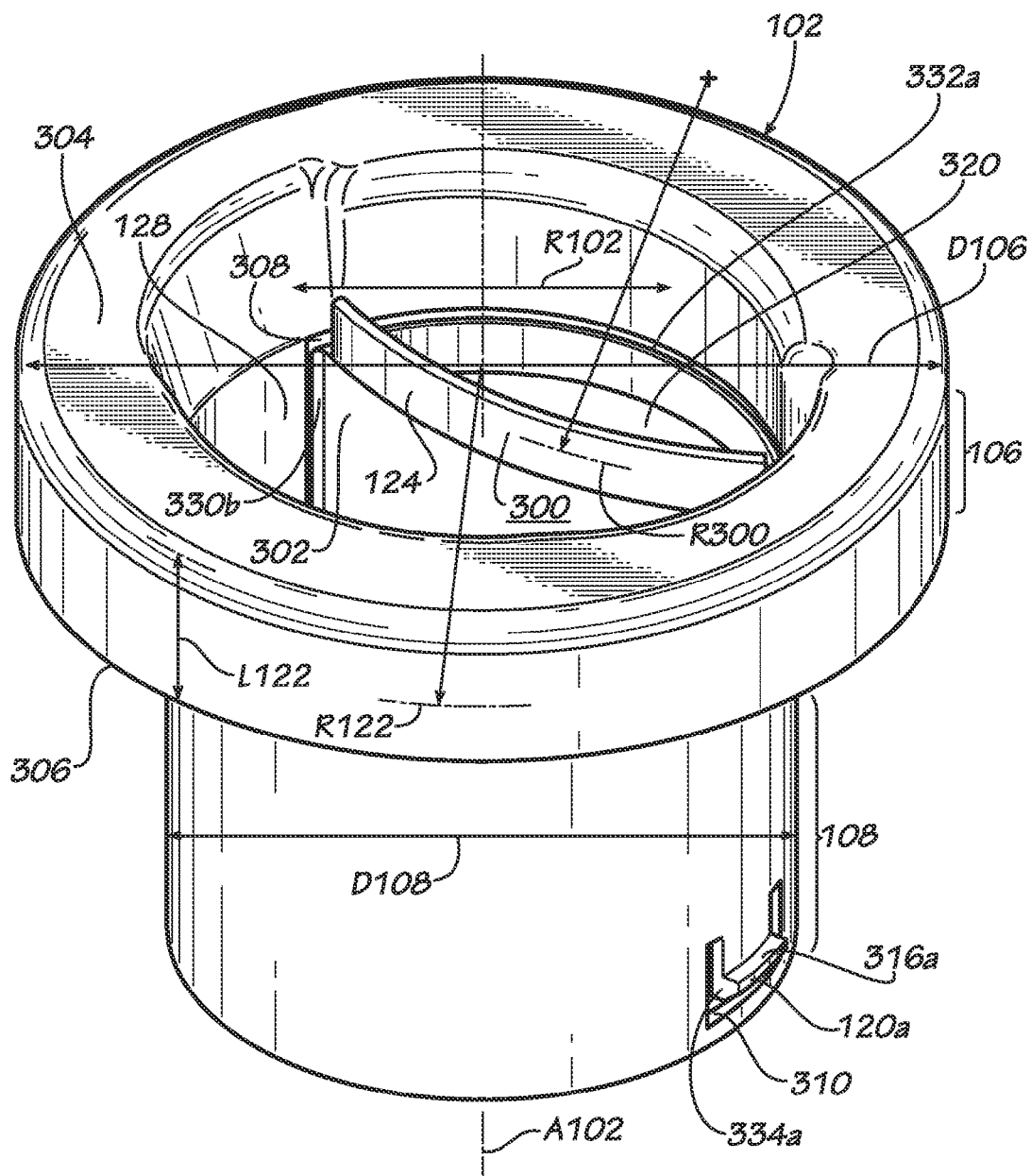


FIG. 3

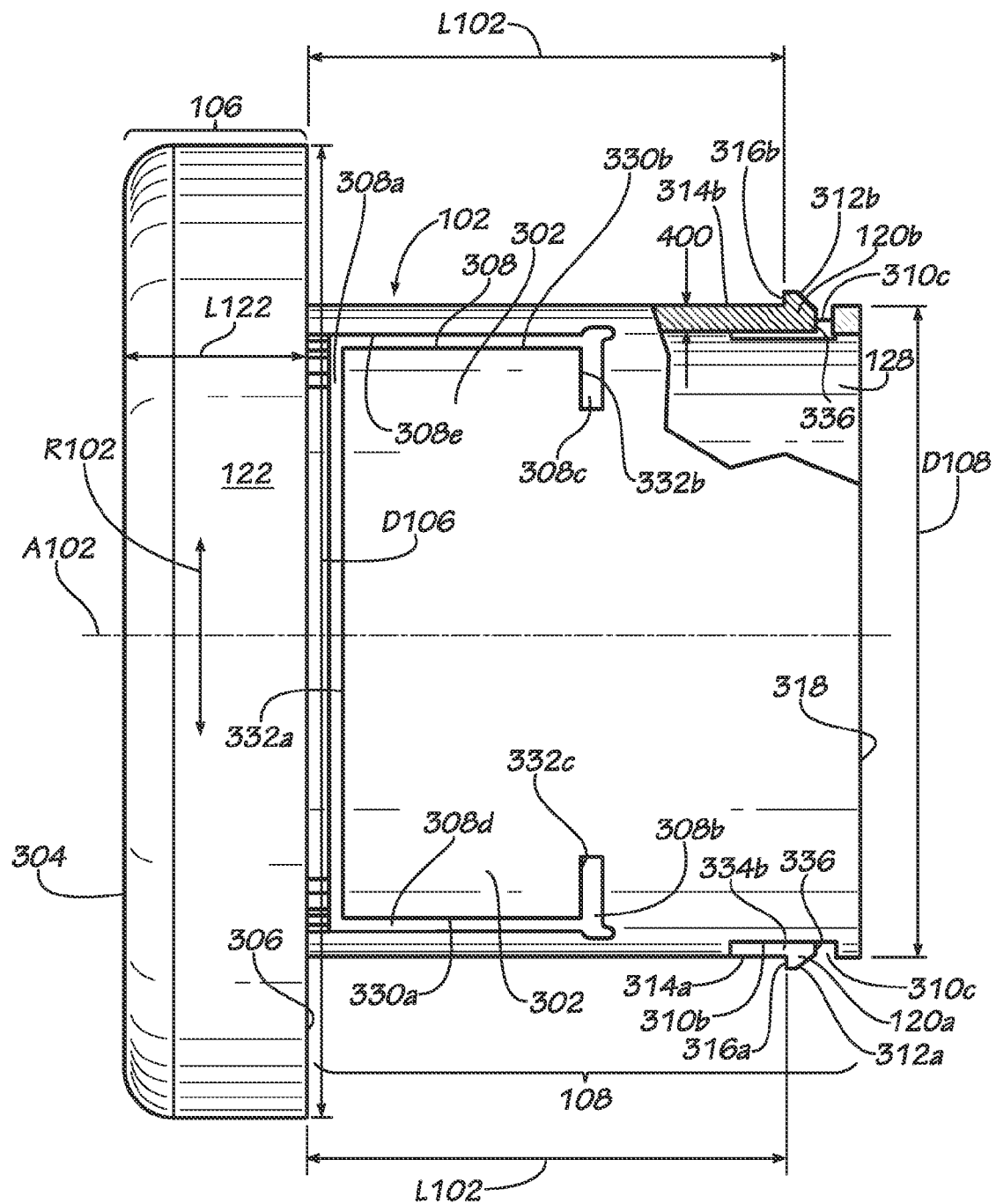


FIG. 4

**FIG. 5**

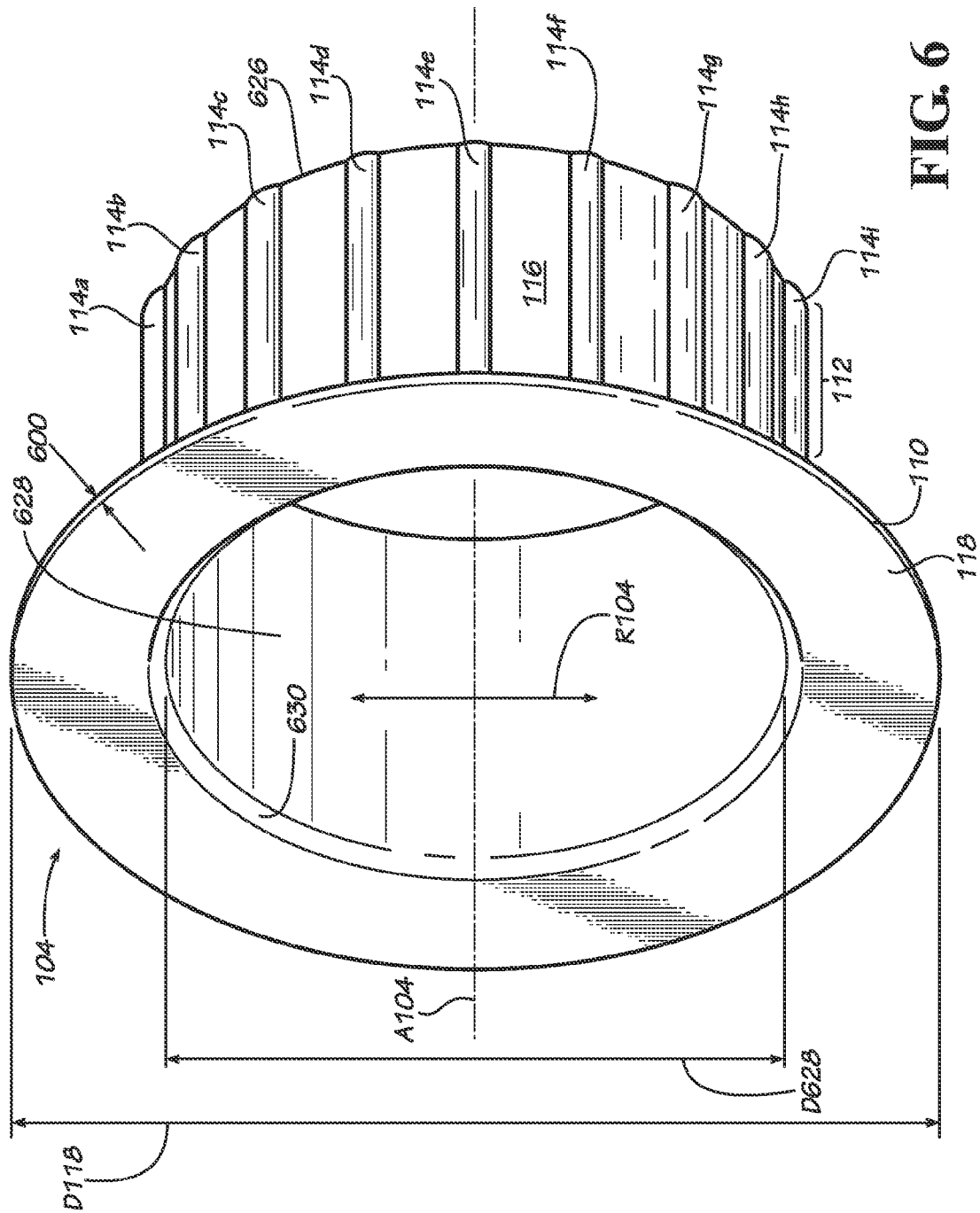
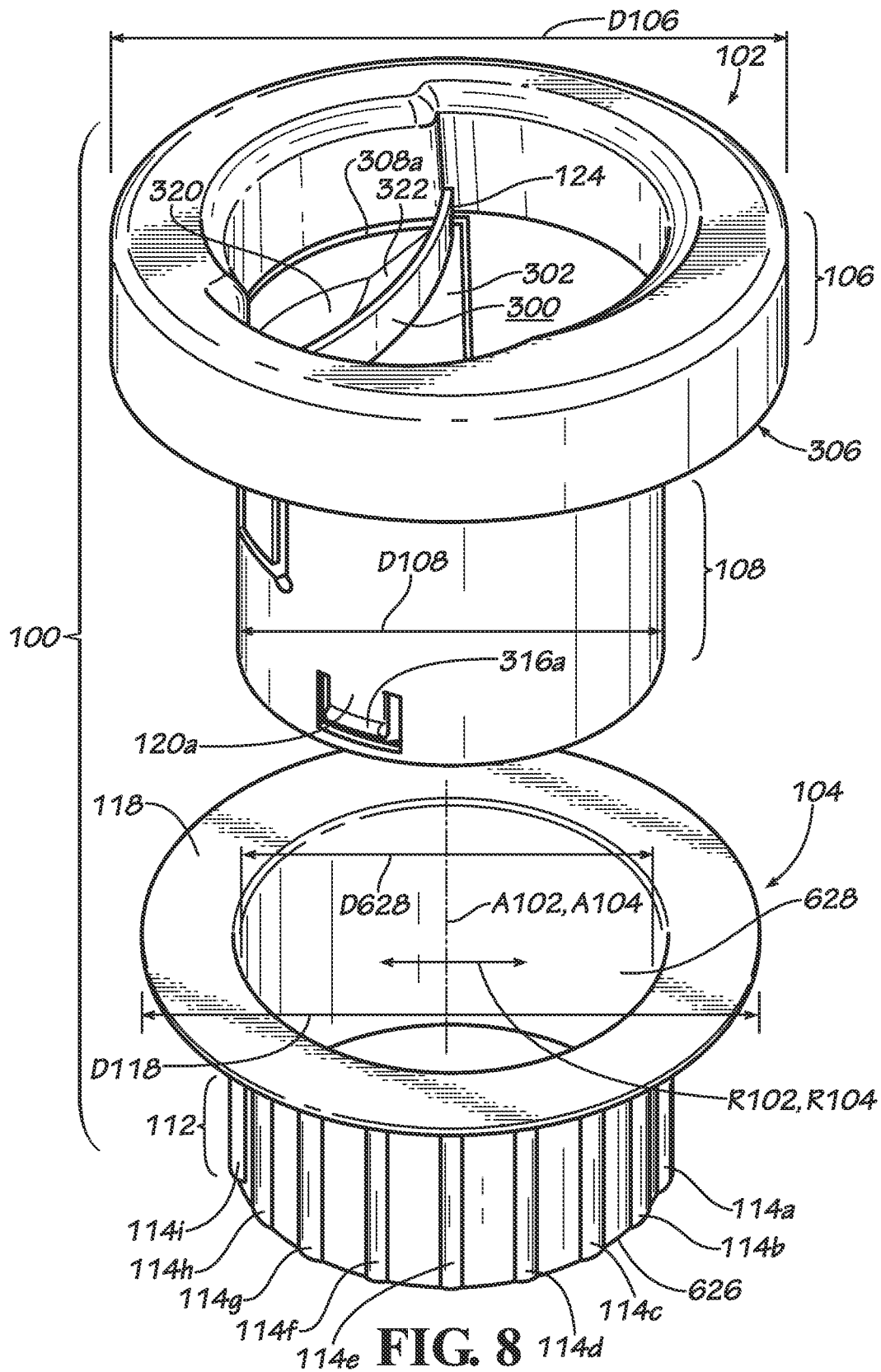
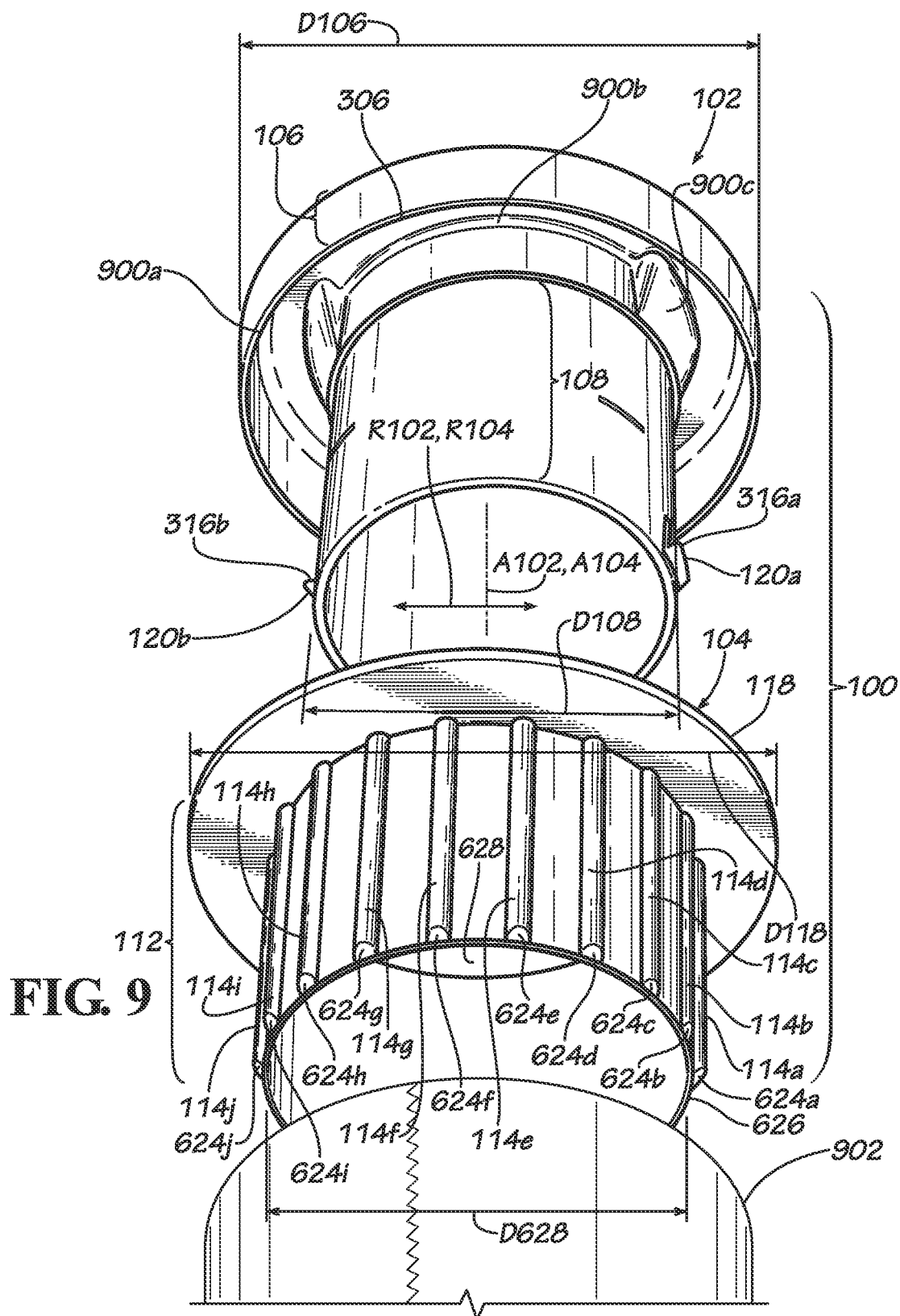


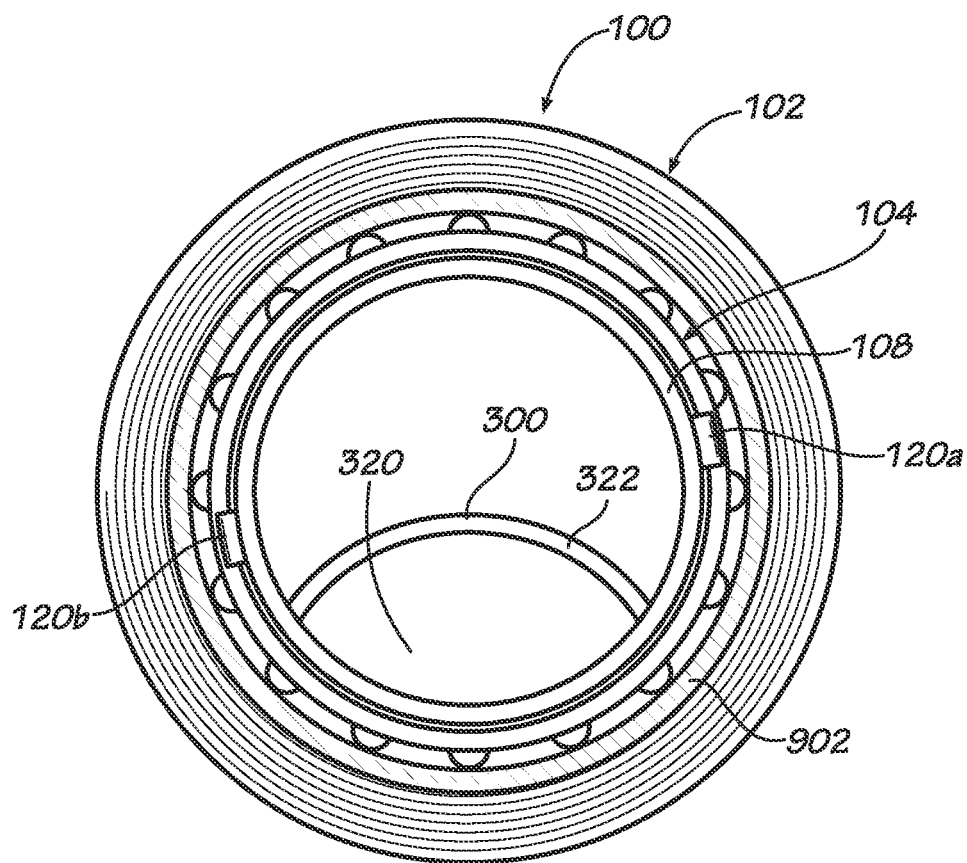
FIG. 6



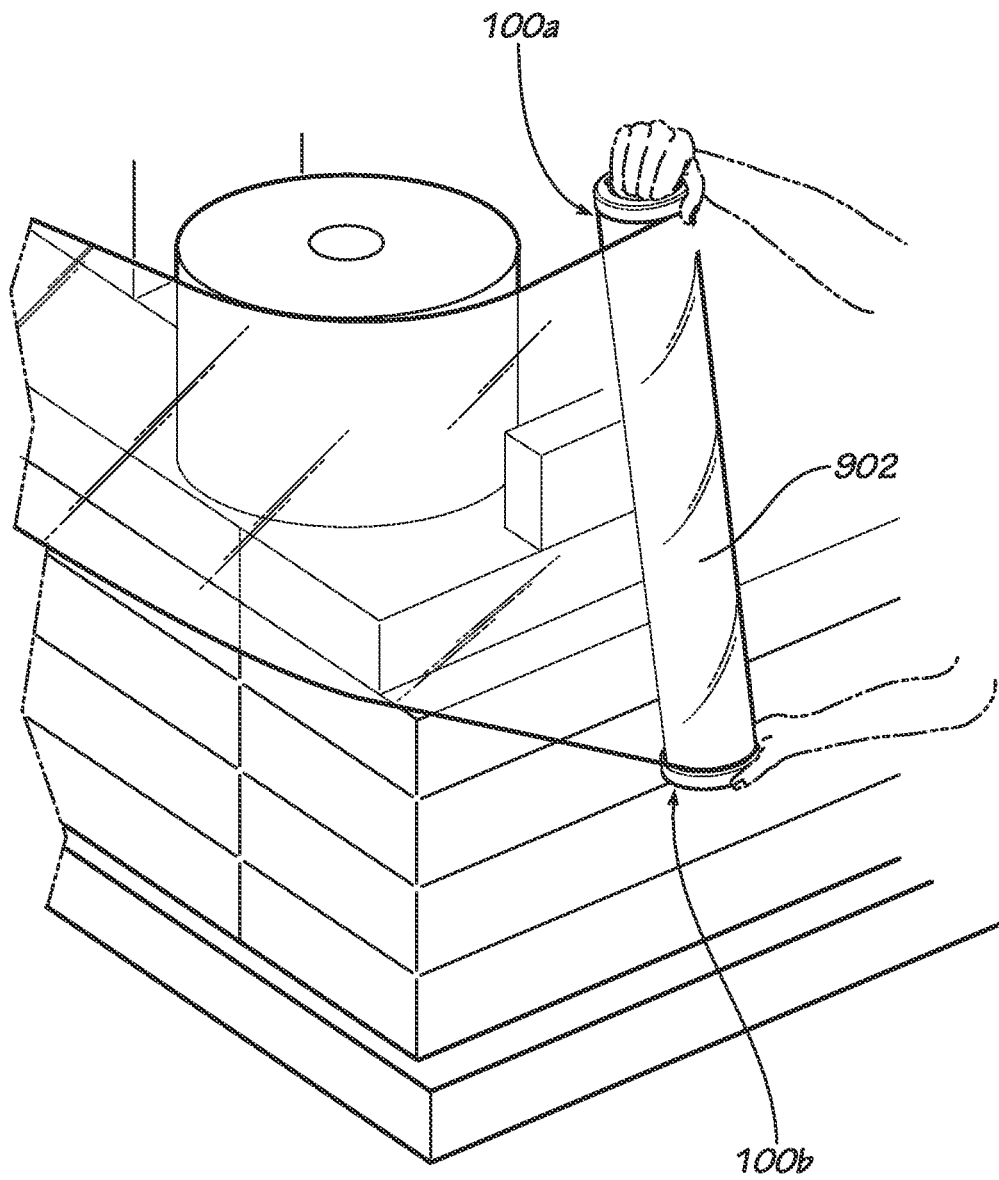
FIG. 7







**FIG. 10**

**FIG. 11A**

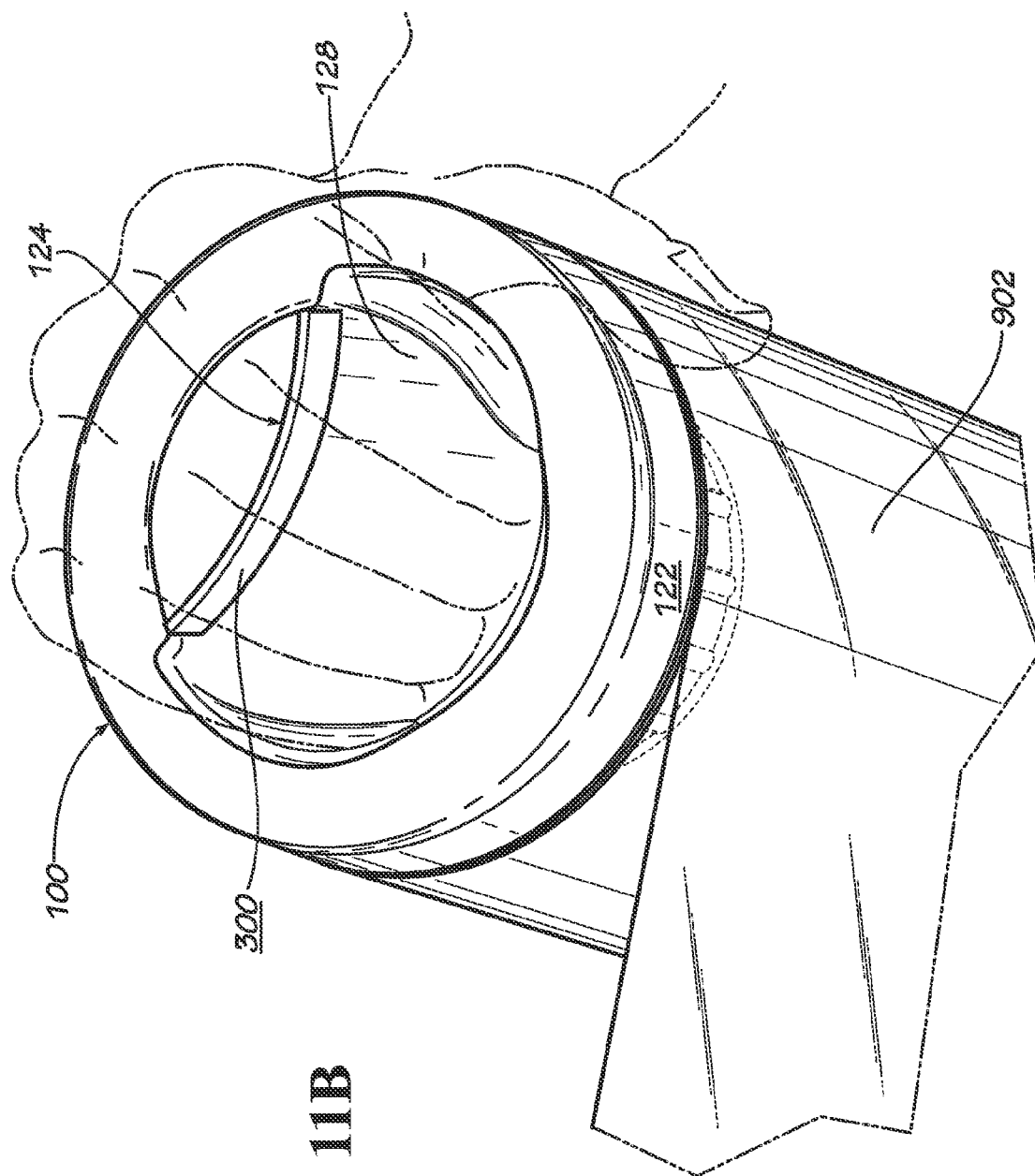


FIG. 11B

1

**BRAKING WRAP DISPENSER**

## FIELD

This disclosure relates to film wrap dispensers. More specifically, this disclosure relates to braking wrap dispensers that allow the rolls of polymeric sheets or films to be dispensed in an ergonomic manner and increase tension in the film as it is being dispensed.

## BACKGROUND

Like cellophane, which is commonly rolled up on a cardboard core member and used as a moisture-proof wrapping for food by unrolling the material onto food found on a plate or other dish, other types of plastic or other sheets of material are sometimes used to wrap goods. For example, this plastic film, membrane, or sheet of any suitable material is often rolled up on cylindrical cardboard core or other similar device such as a spool made of another material that allows the film or sheet to be dispensed to facilitate the wrapping of goods. This can protect the goods from dust, water, and other contaminants found in their environment. In many situations, this dispensing is done manually. Accordingly, it is desirable that the method of dispensing the film or sheet is done in a safe and ergonomic manner.

## SUMMARY

Disclosed is a film dispenser that comprises a holding member including a first end, a second end and that defines a longitudinal axis that extends from the first end to the second end. The film dispenser further comprises a rotating member that includes a first end, a second end and that defines an axis of rotation that extends from the first end to the second end. The longitudinal axis of the holding member is aligned or is coextensive with the rotating axis of the rotating member and said first end of the holding member includes an exterior holding surface that has a radius of curvature that is concentric with the longitudinal axis of the holding member and that extends from the outside extremity to the first end of the rotating member.

Also disclosed is a method of dispensing film from a film roll using a film dispenser comprising the following steps. Obtaining a film dispenser, the film dispenser including a holding member that includes an interior holding surface and an exterior holding surface found along the radial direction of the holding member and a braking portion, said exterior holding surface having a radius of curvature. The film dispenser further comprises a rotating member that has an axis of rotation. The method further comprises the steps of inserting the rotating member into the roll, inserting the holding member into the rotating member until the holding member is rotatably attached to the rotating member and the radius of curvature of the exterior holding surface is concentric with the axis of rotation of the rotating member, holding onto the interior holding surface and exterior holding surface of the rotating member simultaneously, dispensing the film, and pressing onto the braking portion to increase the tension found in the film being dispensed.

Various implementations described in the present disclosure may include additional systems, methods, features, and advantages, which may not necessarily be expressly disclosed herein but will be apparent to one of ordinary skill in the art upon examination of the following detailed description and accompanying drawings. It is intended that all such sys-

2

tems, methods, features, and advantages be included within the present disclosure and protected by the accompanying claims.

## DESCRIPTION OF THE FIGURES

The features and components of the following figures are illustrated to emphasize the general principles of the present disclosure and are not necessarily drawn to scale. Corresponding features and components throughout the figures may be designated by matching reference characters for the sake of consistency and clarity.

FIG. 1 is perspective view of a film dispenser according to a first embodiment of the present disclosure including a holding member and a rotating member.

FIG. 2 is an alternate perspective view of the film dispenser of FIG. 1.

FIG. 3 is a perspective view of the holding member of the film dispenser of FIG. 1 shown by itself.

FIG. 4 is a partial cross-sectional side view of the holding member of FIG. 3 illustrating more clearly its brake portion.

FIG. 5 is an alternate side view of the holding member of FIG. 3 showing clearly a snap.

FIG. 6 perspective view of the rotating member of the film dispenser of FIG. 1 shown by itself.

FIG. 7 is a side view of the rotating member of FIG. 6 shown in a partial cross-sectional view to show the variance of the nominal or typical wall of the rotating member.

FIG. 8 is a top oriented exploded assembly view of the film dispenser of FIG. 1 showing how the holding member and rotating member are assembled.

FIG. 9 is an alternate bottom oriented exploded assembly view of the film dispenser of FIG. 1 being assembled together with a spool of film.

FIG. 10 is a cross-sectional view of the dispenser and spool of FIG. 9 after all three components (dispenser holding member, dispenser rotating member, and spool) have been assembled.

FIG. 11A is an aerial view of a spool with two dispensers attached to the spool at either end in a manner consistent with FIGS. 9 and 10.

FIG. 11B is an enlarged view of a dispenser and spool of FIG. 11A depicting how a dispenser is held in the hand of the user.

## DETAILED DESCRIPTION

Disclosed is a film or wrap dispenser and associated methods, systems, devices, and various apparatus. The dispenser includes at least one holding member and one rotating member that are joined in a rotatable fashion so that the rotating member may rotate with a spool of wrap or film while the user comfortable holds the holding member. The terms "holding member" and "rotating member" should be interpreted broadly and should be applied to any member that accomplishes the necessary tasks of, respectively, holding the dispenser in a user's hand and allowing the rotating member to rotate with the spool as long as the longitudinal axis of the holding member is coextensive or aligned, or nearly so, with the axis of rotation of the rotating member. While it is particularly useful in applications for dispensing plastic film, sheets, or wrap, it should not be so limited as it could be used with other materials of any desired thickness that is used to enclose, enwrap, or otherwise protect articles. It would be understood by one of skill in the art that the disclosed dispenser is described in but a few exemplary embodiments

3

among many. No particular terminology or description should be considered on the disclosure or the scope of any claims issuing therefrom.

One embodiment of a film dispenser **100** is shown and described in FIGS. **1** and **2**. The film dispenser **100** comprises a holding member **102** and a rotating member **104** of substantially annular or tubular configuration that are separate components. Consequently, the holding member **102** has a longitudinal axis **A102** that extends from its first end **106** to its second end **108** and also has a radial direction **R102**. The rotating member **104** comprises a tubular sleeve that has an axis of rotation **A104** that extends from its first end **110** to its second end **112** with ridges or ribs **114a** thru **114j** (only ten are shown but there are eighteen in total that are evenly spaced around the periphery, though any number of ribs **114** may be present in various embodiments including a single rib or a plurality of ribs that may or may not be evenly placed about the periphery of the rotating member) on its outside, exterior, or peripheral surface **116** of its second end **112** for engaging the inside surface of a spool or hollow cardboard core of wrap or other film (shown most clearly in FIG. **10**) and an annular flange **118** that contacts the holding member **102** at its first end **106** or nearly so. The flange may have a thickness along the axis of rotation and may extend annularly in a direction that is perpendicular to the axis of rotation. The rotating member **104** is thus trapped between a snap **120** of the holding member **102** and the umbrella or mushroom-shaped top portion of the first end **106** of the holding member **102**, allowing it to rotate freely but not move along the longitudinal axis **A102** of the holding member **102**. The rotating member **104** also has a radial direction **R104**. When assembled as shown, the rotating axis **A104** of the rotating member **104** and the longitudinal axis **A102** of the holding member **102** are aligned or coextensive, or nearly so, allowing the user to hold onto the holding member **102** while the spool of wrap and the rotating member **104** turn, allowing the wrap to be dispensed. It should be noted that some clearance is provided between the holding member **102** and the rotating member **104** in both the radial and longitudinal directions so that the rotating member can freely rotate. In some embodiments, the amount of clearance can range from 0.005 to 0.025 of an inch on a side.

The umbrella or mushroom shaped portion of the first end **106** of the holding member **102** has an exterior holding surface **122** that can be clearly seen in FIGS. **1** and **2** and an interior holding surface **300** that is on the back side of a rail **124** that is not clearly seen in these figures. However, this surface **300** can be clearly seen in FIG. **3**. It is intended that a portion of the palm of the hand as well as a portion of the thumb be placed against the exterior holding surface **122** while the interior of the fingers can be placed onto the interior holding surface **300**. Thus, the holding member **102** provides an ergonomic handle for a user to hold as the film dispenser is used to dispense material. The holding member **102** also has a brake portion **302** (not shown in FIGS. **1** and **2** but shown in FIG. **3**), which is operatively associated with the rail **124** and interior holding surface **300** so that if sufficient force is exerted by the fingers of a user, the brake portion **302** is deflected outwardly along the radial direction **R102** of the holding member **102** and contacts the rotating member **104**, creating enough friction to stop or at least retard the rotation of the rotating member **104**. This, in turn, causes any wrap or film being dispensed to be tensed and in some circumstances, stretched a desired amount. When these effects are no longer desired, the user simply releases the brake portion **302** by removing enough force from the rail **124** and interior holding surface **300** so that the brake portion **302** springs back

4

inwardly along the radial direction **R102** of the holding member **102** and no longer contacts the rotating member **104**. Although the operative association between the rotating member **104** and the brake portion **302** may be direct, such as when the brake portion **302** is able to engage the rotating member **104** directly or contact it directly, the operative association may also be indirect as may be the case when other components are found between the brake portion **302** and the rotating member **104**.

As shown in FIGS. **1** and **2**, the first end **106** of the holding member **102** includes a blend **126** that extends along the full circumference of a central hole **128** of the holding member **102** that helps provide a lead-in as a user inserts a hand into this hole **128** for grasping onto the holding member **102**. Similarly, two chamfered regions **130a**, **130b** are provided diametrically opposite each other near where the forefinger and pinky finger of a user are inserted into the hole **128**, helping the hand of the user find its way comfortably into the hole. Likewise, the exterior holding surface **122** of the holding member **102** is curved has a radius of curvature **R122** that is concentric with the longitudinal axis **A102** of the holding member **102**, and is therefore concentric with the axis of rotation **A104** of the rotating member **104** or nearly so once the holding member **102** is inserted into the rotating member **104** and the two components are rotatably attached. This construction advantageously reduces the amount of torque exerted on the hand of the user as wrap is dispensed, providing an ergonomic feel during use of the apparatus. Also, the exterior holding surface **122** is of sufficient length **L122** along the longitudinal axis **A102** of the holding member **102** that the rotating roll and its sheet are spaced away from the hand a sufficient distance, helping to protect the hand from the sheet or film as it moves during dispensing. In some embodiments, this distance is as much as 0.75 inches or more but it is contemplated that this distance could be less as long as it is at least greater than 0.250 of an inch for reasons explained later herein. In some embodiments, this distance is equal to the length **L122** of the holding surface **122**, but it is contemplated that the distance could be split into a portion that includes the length **L122** of the holding surface **122** and another distance that separates the first portion **106** of the holding member **102** from the first portion **110** of the rotating member **104** as would be the case if another stop member or flange was added to the holding member and spaced therefrom along the longitudinal axis for contacting the annular flange of the rotating member.

Focusing now on FIGS. **3**, **4**, and **5**, the details of the structure of the holding member **102** can be seen. As mentioned already, the holding member **102** includes a first end **106**, a second end **108**, and a longitudinal axis **A102** that extends from the first end **106** to the second end **108**. The first end **106** is configured for being held in a hand of a user as previously described above and the second end **108** is tubular and is configured for engaging the rotating member **104**. The first end **106** includes an outside extremity **304** or surface that defines the portion of the first end **106** of the holding member **102** that is furthest away from the interior of the holding member **102** along the longitudinal axis **A102**. This extremity **304** is spaced away from an inside extremity **306** or surface, which defines the portion of the first end **106** of the holding member **102** that is nearest the second end **108** of the holding member **102**, by a predetermined distance **L122**. The first end **106** of the holding member **102** has an outside diameter **D106** and the second end **108** of the holding member **102** has an outside diameter **D108**.

Looking at FIG. **4**, it can be seen that the holding member **102** has a nominal or typical wall **400** that has a thickness that



5

varies within prescribed ranges. In some embodiments, this wall can vary in thickness from 0.045 to 0.085 inches but may average around 0.065 inches. Of course, the thickness of the nominal wall 400 may vary outside of this range or may not exist at all if the holding member 102 and the rotating member 104 are machined from a single piece of material. That is to say, maintaining a consistent wall thickness in such situations is not necessary and may not be present for that reason. For example, the holding member 102 and the rotating member 104 have a nominal wall that maintains a consistent wall thickness since they are made from plastic using an injection molding process. In such a case, it is advantageous to maintain a nominal wall having a fairly consistent wall thickness to avoid processing defects such as sink marks or voids. The general design rule is that the variation in the wall thickness of an injection molded part should be between  $\pm 15\%$  to  $\pm 25\%$  depending on the shrinkage factor of the material. However, it is contemplated that these components may be made of other suitable materials using other suitable processes, in which case the maintenance of a nominal wall thickness is not necessary. However, in cases where a nominal wall having a relatively consistent wall thickness is provided for either the holding member 102 or the rotating member 104, it is preferable that the outside extremity of the holding member be spaced away from the inside extremity of the first end of the holding member by an amount greater than a nominal wall thickness. In some embodiments, this amount may be at least greater than 0.250 inches.

Also, the exterior holding surface 122 of the first end 106 of the holding member 102 may extend from the outside extremity 304 to the inside extremity 306 of the first end 106 of the holding member 102 in a continuous fashion, providing a smooth and consistent surface for placing a portion of the palm of the hand or thumb on the surface (depicted in FIGS. 11A and 11B). As shown in FIG. 1 thru 3, the exterior holding surface 122 is curved and has a radius of curvature R122 that has a center that is coextensive with the longitudinal axis A102 of the holding member, meaning that it is concentric with the longitudinal axis. As shown in FIG. 1 thru 3, the exterior holding surface 122 is found on an umbrella or mushroom shaped first end 106 of the holding member 102 and is substantially smooth in the circumferential and longitudinal directions. However, it is contemplated that this shape could be altered and that the exterior holding surface 122 does not necessarily need to be straight. For example, the exterior holding surface 122 could be wavy or could have something other than a purely radial configuration when looking at the top of the holding member 102. In such a case, as long as the average location of the exterior holding surface would be close or equivalent to a radius of curvature with a center that is close or coincident with the longitudinal axis of the holding member, than the advantage of reduced torque on the hand of a user during use of the apparatus would be achieved. Accordingly, these other embodiments are contemplated to be within the scope of the present disclosure.

The brake portion 302 of the holding member 102 can be seen completely in FIG. 4 and partially in FIGS. 3 and 5. It is formed by a cutout in the wall of the second end 108 of the holding member 102 that is defined by a slot 308, that is to say, the slot is in the vicinity of the brake portion and the connection portion that extends from the brake portion in a manner that will be described later herein. The slot has three portions 308a, 308b, 308c that extend in the radial direction R102 of the holding member 102 from the inside surface that defines hole 128 of the holding member 102 toward the outside surface that defines the outer diameter D108 of the holding member 102, which is in a plane that is perpendicular to the

6

longitudinal direction A102 of the holding member 102. Alternatively, one may characterize these slots as extending in the circumferential direction around the holding member 102. The first 308a of these radial slot portions defines the topmost extent of the brake portion 302 and is at, proximate, or near the intersection of the first and second ends 106, 108 of the holding member 102 and extends completely across and above the brake portion 302. Portion 308a is located toward or nearer the exterior of the holding member along the longitudinal axis A102. On the other hand, the second and third of these radial slot portions 308b, 308c are located toward or nearer the interior of the holding member along the longitudinal axis. The second and third of these radial slot portions 308b, 308c extend only partially across the brake portion 302 on either side of the brake portion 302 near or proximate where the brake portion connects to the wall of the second end 108 of the holding member 102. The slot 308 also has two longitudinal slot portions 308d, 308e that extend in the longitudinal direction A102 and connect the first radial slot portion 308a with the second and third radial slot portions 308b, 308c, respectively. The slot 308 provides the brake portion with enough flexibility so that it can move and contact the rotating member 104 when it is desired to tense the sheet or film being unrolled by the dispenser 100. In other words, the brake portion 302 is thus configured for engaging the rotating member 104. To this end, the slots have a width that can vary from 0.05 to 0.125 of an inch but widths outside of this range are also contemplated depending on the application. Therefore, these other embodiments are considered part of the present disclosure as well. Of course, as best seen in FIG. 4, the slot 308 defines two longitudinal extending exterior surfaces 330a, 330b and three radial extending exterior surfaces 332a, 332b, 332c of the brake portion 302.

One snap 120a can be completely seen in FIGS. 3 and 5 while both snaps 120a, 120b can be partially seen in FIG. 4 as they are diametrically opposite each other and are found below the chamfered regions 130a, 130b found on the first end 106 of the holding member 102 along the longitudinal axis A102. The snap 120a is defined by another slot 310 that has two longitudinal portions 310a, 310b and one radial or circumferential portion 310c (as best seen in FIG. 5) since it extends in a direction or plane that is perpendicular to the longitudinal axis A102 of the holding member 102. The slots 310 thus configures the snaps 120a, 120b with enough flexibility so that they can move inward along the radial direction R102 of the holding member 102 as the second end 108 of the holding member 102 is inserted into the rotating member 104. To this end the width of these slots is 0.050 to 0.0125 of an inch but could be varied as needed and these other embodiments are considered to be within the scope of the present disclosure. These slots define two longitudinally extending exterior surfaces 334a, 334b and one radially oriented exterior extending surface 336. Each snap 120a, 120b has a ramp surface 312a, 312b angled at 40 degrees from the longitudinal direction A102 to provide a camming motion to the snap 120a, 120b as it is inserted into rotating member 104 until the outside circumferential surface 314a, 314b of the snap 120a, 120b will contact the inside surface of the rotating member 104. A relatively flat catch surface 316a, 316b is found on the snap 120a, 120b that faces in a direction toward the inside of the holding member 102 along the longitudinal axis A102. The snaps 120a, 120b are found near or proximate an outside extremity 318 of the second end 108 of the holding member 102. As mentioned above and will be shown in more detail later herein, the overall length of the rotating member 104 is less than the distance from the first end 106 of the holding member 102 to the catch surface 316 of the snap 120 mea-

7

sured in a direction that is parallel to the longitudinal axis A102 of the holding member 102, allowing it to be placed between these features so it abuts these features. It is contemplated that the number, placement, and configuration of the snaps may be altered in various embodiments and within particular embodiments of the present disclosure. For example, a plurality of snaps or a single snap may be used as well as other variations.

As mentioned above with respect to FIGS. 1, 2, and 3, the first end 106 of the holding member 102 includes a blend 126 and chamfers 130 for guiding the insertion of a hand into the central hole 128 of the holding member 102. Once a hand is inside of the holding member 102, it presses onto the interior holding surface 300 found on the rail 124 that is operatively associated with the brake portion 302 of the holding member 102. An example of how this operative association is made in one embodiment of the present disclosure will now be explained with reference to FIGS. 3 and 8. As already stated, the top radial portion of the slot 308a that defines the brake portion 302 is found at the division of the holding member 102 into its first and second ends 106, 108 (see FIG. 4). Therefore, any structure found above this top longitudinal portion of the slot 308a is to be considered part of the first end 106 of the holding member 102. A connecting portion 320 is located toward the interior of the holding member 102 along the longitudinal axis A102 and away from the outside extremity of the first end of the holding member 102, said connecting portion 320 extends in a plane that is perpendicular to the longitudinal axis A102 of the holding member 102. Also, the connecting portion 320 or member is located below the top radial portion of the slot 308a and extends in an inner radial direction R102 toward the rail 124, which extends above the top radial portion of the slot 308a. A transition region 322, member, or portion connects or attaches the connecting portion 320 to the rail 124 and its associated interior holding surface 300 and angles upwardly along the longitudinal direction A102 to the connecting portion 320 as best seen in FIG. 8.

Accordingly, the rail 124 and interior holding surface 300 are considered part of the first end 106 of the holding member 102, even though they are not connected directly to the first end 106 of the holding member 102, while the connecting and transition portions 320, 322 are considered to be part of the second end 108 of the holding member 102. Since the rail 124 and its interior holding surface 300 are connected to the brake portion 302 by the transition and connecting portions 320, 322 of the second end 108 of the holding member 102, the rail 124 and its interior holding surface 300 are operatively associated with the brake portion 302 as any force directed in an outward direction along the radius R102 of the holding member 102 will necessarily move the brake portion 302. Of course, it is contemplated that this operative association could be achieved in other ways such as by having the rail connected to the brake portion directly. Also, the rail 124 and the interior holding surface 300 may all be found on the second end 108 of the holding member 102 as would be the case if they were found below the top radial portion of the slot 308a that defines the brake portion 302. The interior holding surface 300 also has a radius of curvature R300 that has a center that is found toward the exterior of the holding member and is therefore not coincident or concentric with the longitudinal axis A102 of the holding member.

The slots 308, 310 that define the brake portion 302 and the snaps 120 create undercuts when molding or casting is used to make the holding member 102. As a result, a side action or side actions may be used to form these structures as the holding member 102 is being molded that are then removed,

8

eliminating the undercut and allowing the ejection of the holding member 102 from the mold. For example, two side actions that each make one snap and half of the slots that define the brake portion may be employed. With such a design, the side actions would move in a direction that is perpendicular to the longitudinal axis A102 and runs up and down as shown in FIG. 4, which is parallel to the radial direction R102, or that is perpendicular to the page in FIG. 5.

FIGS. 6 and 7 show the detailed structure of the rotating member 104 that has a generally annular or tubular shape. The rotating member 104 has first end 110, second end 112, and axis of rotation A104 that runs from the first end 110 to the second end 112. The first end 110 comprises an abutment portion in the form of an annular flange 118 that has a nominal typical wall thickness 600 along its axis of rotation A104 and a thickness or length that extends along the radial direction R104 of the rotating member 104. The second end 108 comprises a tube or sleeve portion that has exterior peripheral or cylindrical surface 116 with ridges or ribs 114 on it for engaging the inside of a spool of material in a frictionally desirable manner, helping to keep the spool from falling off the dispenser 100. The cross section of one of the ribs 114 may include a semi-circular shape having a radius of 0.156 of an inch when looking at a cross-section taken along the radial direction R104 of the rotating member 104. Ends 624 of the ribs 114 adjacent an outside extremity 626 of the second end 112 of the rotating member 104 may be angled at 45 degrees from the axis of rotation A104, providing a lead-in for inserting the rotating member 104 into a spool of material. The rotating member 104 has a nominal or typical wall 600 that varies from 0.045 to 0.085 of an inch with an average of 0.65 of an inch. The central hole 628 of the rotating member 104 is sized or has a diameter D628 to receive the second end 108 of the holding member 102 as it is slightly greater than the outside diameter D106 of the second end 106 of the holding member 102. A blend 630 along the entry of this hole 628 near or proximate the first end 110 of the rotating member 104 is present to provide a lead-in for inserting the holding member 102 into the rotating member 104. The outer diameter of the flange D118 is substantially the same as the outer diameter D106 of the first end 106 of the holding member 102. Of course, it is contemplated that the dimensions associated with various features of the rotating member could be changed depending on the application as long as it would work properly with the holding member and vice versa.

Finally, FIGS. 8, 9, and 10 show how the holding member 102 and rotating member 104 may be assembled and how the dispenser 100 is effectively coupled to a spool 902 of material. First, the rotating member 104 is inserted into the hole of the spool 902 until its abutment portion or first end 110 contacts the end of the spool. At this point, the ridges or ribs 114 are completely enveloped in the spool and are frictionally holding the rotating member 104 in the spool (seen best in FIG. 10). Next, the second end 108 of the holding member 102 is inserted into the central hole 628 of the rotating member 104 since the outside diameter D108 of the second end 108 of the holding member 102 is less than the diameter D628 of the hole 628 of the rotating member 104. As the holding member 102 is inserted into the rotating member 104, the snaps 120a, 120b are pushed radially inward as previously described until the second end 108 of the holding member 102 extends past the second end 112 of the rotating member 104, at which time the snaps 120a, 120b are released and the catch surfaces 316a, 316b of the snaps 120a, 120b capture the outside extremity 626 of the second end 112 of the rotating member 104. At about the same time, the abutment portion 118 contacts or nearly contacts the inside extremity 306 of the

first end 106 of the holding member 102 as the diameter D118 of the flange 118 of the rotating member 104 is about the same as the outside diameter D106 of the first end 106 of the holding member 102. Thus, the first end 106 of the holding member 102 is spaced away from the sheet that is moving from the spool 902 when the dispensing is happening. The rotating member 104 fits between the snaps 102a, 102b and inside extremity 306 of the first end 106 of the holding member 102 because the overall length L104 of the rotating member 104 is less than the distance L102 from the inside extremity 306 to the catch surfaces 316a, 316b of the snaps 120a, 120b (best seen in FIGS. 4, 5 and 7). FIG. 10 shows the spool 902, rotating member 104, and holding member 102 completely assembled.

This process is then repeated on the other side of the spool so that two dispensers 100a, 100b are found at either end of the spool 902. The user can then use the dispensers 100a, 100b to unroll material from the spools 902 as has already been described. See FIGS. 11A and 11B for illustrations of how the dispenser 100 is used to dispense film and how a dispenser 100 is held in the hand of the user. Once attached to a spool 902, it is difficult to detach a dispenser 100 as access to the latch or snap 120 is not readily provided. However, it is contemplated that a release mechanism that is operatively associated with the snaps 120 may be provided inside the holding member 102 that can be reached and activated for detaching the spool 902 if desired. Alternatively, once the material has been expended from the spool 902, the core can be cut open and access to the latch can be achieved and the dispenser removed if desired. In other cases, when the snap fit between the holding member and the rotating member is aggressive enough and the frictional fit between the spool and the rotating member is not too great, the entire film dispenser may be pulled out by exerting enough force on the holding member to pull the dispenser out of the spool.

FIG. 9 also shows that the underside of the mushroom or umbrella shaped first end 106 of the holding member 102 lacks any ribs or gussets but such structure can be provided if desired to help give structural support to the first end 106 of the holding member 102 and to prevent warping of the first end of the holding member 102 as may occur when heat builds up in areas surrounded by three walls of plastic. Also, contoured surfaces 900a, 900b, 900c can be seen that mimic the surfaces found on the top side of the first end 106 of the holding member 102 that provide chamfers and blends and are offset from them, allowing the nominal wall to be maintained.

Finally, FIG. 11B shows the way a dispenser 100 fits into the hand of the user, allowing the fingers to fit within the central hole 128 of the holding member 102 and the thumb and portion of the palm to be placed on the exterior holding surface 122 of the holding member 102 seen. As the film is being dispensed, a clenching of the hand will necessarily cause the brake portion 302 of the holding member 102 to move radially outward and impinge on the rotating member 104, causing the rotating member 104 to slow down or stop rotating altogether, resulting in tensioning or even stretching of the film to occur provided the user continues to move the spool 902, all as has been previously described.

It should be noted that any of the steps of any of the methods described herein may be performed in any order or could be performed in sub-steps that are done in any order or that are separated in time from each other by other steps or sub-steps. Similarly, the steps of inserting the holding member 102 into the rotating member 104 and inserting the rotating member 104 into the spool 902 or roll can be done in any order as both effectuate the same end result, that is to say, the

dispenser is operatively engaged with the spool 902 or roll. The same principle should be applied to any step of any method disclosed herein. Additional steps may also be added. For example, the method or device necessary to make the holding member 102 actually be rotationally attached to the rotating member 104 may be performed after the holding member 102 has been inserted into the rotating member 104 and before both have been inserted into the spool 902 or roll.

This assembly configuration represents one of many possible assembly configurations. One skilled in the art will understand obvious variations of this assembly configuration are included within this disclosure, including variations of steps, combinations of steps, and dissections of steps, among others. Where materials are chosen for the elements of this assembly—particularly, rubber, metal, and plastic—similar material choices may also be used and would be obvious to one in the art. The rotating member 104 and/or the holding member 102 may be made of cast iron, steel, aluminum, titanium, copper, brass, various plastics, polymers, resins, or any material of sufficient strength to withstand the loads placed on them when dispensing film or other materials from a roll or spool 902 and yet be resilient enough to allow snapping of the holding member 102 and the rotating member 104 together as well as movement of the brake that is integrally formed on either the holding member 102 or rotating member 104. It is contemplated that many of the features that have been described herein to be on either the holding member 102 or the rotating member 104 could be switched to the other of the holding member 102 or the rotating member 104 including the snaps and that features found completely in one member could be split in some cases between the two members.

Furthermore, the configuration of either member need not be annular but could be something else depending on the application. Finally, additional members may be added to the film dispenser assembly and various components may be split into other components. For example, an elastomeric component may be applied to the handle portion of the holding member 102 to aid in grip and ergonomics. In such a case, the elastomeric component would be considered a portion of the holding member 102. This elastomeric component could be added to a plastic holding member using two shot molding technology or by other methods known or that will be devised in the art.

It should be emphasized that the embodiments described herein are merely possible examples of implementations, merely set forth for a clear understanding of the principles of the present disclosure. Many variations and modifications may be made to the described embodiment(s) without departing substantially from the spirit and principles of the present disclosure. Further, the scope of the present disclosure is intended to cover any and all combinations and sub-combinations of all elements, features, and aspects discussed above. All such modifications and variations are intended to be included herein within the scope of the present disclosure, and all possible claims to individual aspects or combinations of elements or steps are intended to be supported by the present disclosure.

One should note that conditional language, such as, among others, “can,” “could,” “might,” or “may,” unless specifically stated otherwise, or otherwise understood within the context as used, is generally intended to convey that certain embodiments include, while other embodiments do not include, certain features, elements and/or steps. Thus, such conditional language is not generally intended to imply that features, elements and/or steps are in any way required for one or more particular embodiments or that one or more particular

## 11

embodiments necessarily include logic for deciding, with or without user input or prompting, whether these features, elements and/or steps are included or are to be performed in any particular embodiment.

Various implementations described in the present disclosure may include additional systems, methods, features, and advantages, which may not necessarily be expressly disclosed herein but will be apparent to one of ordinary skill in the art upon examination of the following detailed description and accompanying drawings. It is intended that all such systems, methods, features, and advantages be included within the present disclosure and protected by the accompanying claims.

That which is claimed is:

1. A film dispenser comprising:

a holding member including a first end and a second end, the holding member defining a longitudinal axis that extends from the first end to the second end, the holding member further including a connecting portion that is located toward an interior of the holding member along the longitudinal axis and away from an outside extremity of the first end of the holding member, the connecting portion extending in a plane that is perpendicular to the longitudinal axis, the holding member further including a rail adjacent to the connecting portion and a brake portion adjacent to the connecting portion, the rail including an interior holding surface;

a rotating member including a first end and a second end, the rotating member defining an axis of rotation that extends from the first end to the second end;

wherein said longitudinal axis of the holding member is aligned with the axis of rotation of the rotating member, and wherein said first end of the holding member includes an exterior holding surface that has a radius of curvature that is concentric with the longitudinal axis of the holding member;

wherein the connecting portion and the brake portion are on the second end of the holding member and a slot is on the second end of the holding member in a vicinity of the connecting portion and brake portion, the slot including portions extending parallel to the longitudinal axis and portions extending in a plane that is perpendicular to the longitudinal axis and wherein the rail is on the first end of the holding member;

wherein the brake portion includes a width and wherein the slot has three portions that extend in a direction that is perpendicular to the longitudinal axis of the holding member, a first of the three portions being located nearer an exterior of the holding member along the longitudinal axis and extending completely across a width of the brake portion, and a second portion and a third portion of the three portions being located nearer the interior of the holding member along the longitudinal axis and extending only partially across the width of the brake portion.

2. The film dispenser of claim 1, wherein the first end of the holding member is a handle and includes an interior holding surface.

3. The film dispenser of claim 2, wherein said interior holding surface is curved and has a radius of curvature that is not concentric with the longitudinal axis.

4. The film dispenser of claim 1, wherein the outside extremity at the first end of the holding member is spaced away from the first end of the rotating member by at least an amount greater than 0.25 inches.

5. The film dispenser of claim 1, wherein the holding member further includes a transition portion attaching the rail to the connecting portion.

## 12

6. The film dispenser of claim 1, wherein the brake portion is operatively associated with the rotating member.

7. The film dispenser of claim 1, wherein the second end of the holding member includes an outside extremity, said film dispenser further comprising a snap that is proximate to an outside extremity of the second end of the holding member.

8. The film dispenser of claim 7, wherein the holding member further includes a plurality of snaps proximate to an outside extremity of the second end of the holding member, said snaps being defined by a slot that includes portions extending in a direction that is parallel to the longitudinal axis and portions extending in a direction that is perpendicular to the longitudinal axis of the holding member.

9. The film dispenser of claim 8, wherein the first end of the holding member includes an inside extremity and a distance from the inside extremity of the first end of the holding member to the snaps is greater than an overall length of the rotating member measured in direction that is parallel to the longitudinal axis of the holding member, allowing the rotating member to fit between and abut the snaps and the inside extremity of the first end of the holding member.

10. The film dispenser of claim 1, wherein the rotating member includes a nominal wall and the first end of the rotating member includes an abutment portion that has a thickness along the axis of rotation that is the same as the nominal wall of the rotating member and extends annularly in a direction that is perpendicular to the axis of rotation.

11. The film dispenser of claim 10, wherein the second end of the rotating member includes a sleeve portion that has a thickness in a direction that is perpendicular to the axis of rotation that is the same as the nominal wall of the rotating member and that extends in a direction that is parallel to the axis of rotation.

12. The film dispenser of claim 11, wherein an exterior cylindrical surface of the sleeve portion of the rotating member includes a plurality of ribs.

13. A film dispenser of claim 1, wherein the holding member includes a nominal wall and the outside extremity of the first end of the holding member is spaced away from the second end of the holding member by a predetermined distance that is greater than the nominal wall of the holding member.

14. The film dispenser of claim 1, wherein both the holding member and the rotating member include annular configurations.

15. A method of dispensing film from a film roll using a film dispenser, the method comprising:

obtaining a film dispenser, the film dispenser including

a holding member including an interior holding surface and an exterior holding surface along a radial direction of the holding member, the holding member further including a first end and a second end, the holding member defining a longitudinal axis that extends from the first end to the second end, the holding member further including a connecting portion that is located toward an interior of the holding member along the longitudinal axis and away from an outside extremity of the first end of the holding member, the connecting portion extending in a plane that is perpendicular to the longitudinal axis, the exterior holding surface having a radius of curvature, the holding member further including a rail adjacent to the connecting portion and a brake portion adjacent to the connecting portion, the rail including an interior holding surface;

a rotating member including a first end and a second end, the rotating member defining an axis of rotation that extends from the first end to the second end;

## 13

inserting the rotating member into the film roll;  
 inserting the holding member into the rotating member  
 until the holding member is rotatably attached to rotat-  
 ing member and the radius of curvature of the exterior  
 holding surface is concentric with the axis of rotation of  
 the rotating member;  
 holding onto the interior holding surface and the exterior  
 holding surface found on the holding member simulta-  
 neously;  
 dispensing the film; and  
 pressing onto the brake portion to increase a tension found  
 in the film being dispensed;  
 wherein the connecting portion and the brake portion are  
 on the second end of the holding member and a slot is on  
 the second end of the holding member in a vicinity of the  
 connecting portion and brake portion, the slot including  
 portions extending parallel to the longitudinal axis and  
 portions extending in a plane that is perpendicular to the  
 longitudinal axis and wherein the rail is on the first end  
 of the holding member;  
 wherein the brake portion includes a width and wherein  
 said slot has three portions that extend in a direction that  
 is perpendicular to the longitudinal axis of the holding  
 member, a first of the three portions being located nearer  
 an exterior of the holding member along the longitudinal  
 axis and extending completely across the width of the  
 brake portion, and a second portion and a third portion of  
 the three portions being located nearer the interior of the  
 holding member along the longitudinal axis and extend-  
 ing only partially across the width of the brake portion.

**16.** The method of claim **15**, wherein the interior holding  
 surface is curved and has a radius of curvature that is not  
 concentric with the longitudinal axis.

**17.** The method of claim **15**, wherein the rotating member  
 includes a nominal wall and the first end of the rotating  
 member includes an abutment portion that has a thickness  
 along the axis of rotation that is the same as a thickness of the  
 nominal wall of the rotating member and extends annularly in  
 a direction that is perpendicular to the axis of rotation.

## 14

**18.** A film dispenser comprising:  
 a holding member, the holding member including  
 a first end and a second end, the holding member defin-  
 ing a longitudinal axis that extends from the first end  
 to the second end;  
 a connecting portion that is located toward an interior of  
 the holding member along the longitudinal axis and  
 away from an outside extremity of the first end of the  
 holding member, the connecting portion extending at  
 an angle to the longitudinal axis;  
 a slot defined on the second end of the holding member,  
 the slot including portions extending parallel to the  
 longitudinal axis and portions extending in a plane  
 that is perpendicular to the longitudinal axis, the slot  
 further including three portions that extend in a direc-  
 tion that is perpendicular to the longitudinal axis of  
 the holding member, a first of the three portions being  
 located nearer an exterior of the holding member  
 along the longitudinal axis; and  
 a brake portion adjacent to the connecting portion, the  
 brake portion including a width, the first portion of the  
 slot extending completely across the width of the  
 brake portion, and a second portion and a third portion  
 of the three portions of the slot being located nearer  
 the interior of the holding member along the longitu-  
 dinal axis and extending only partially across the  
 width of the brake portion; and  
 a rotating member including a first end and a second end,  
 the rotating member defining an axis of rotation that  
 extends from the first end to the second end, the longi-  
 tudinal axis of the holding member aligned with the axis  
 of rotation.

**19.** The film dispenser of claim **18**, wherein the first end of  
 the holding member includes an exterior holding surface that  
 has a radius of curvature that is concentric with the longitu-  
 dinal axis of the holding member.

**20.** The film dispenser of claim **18**, further comprising a rail  
 adjacent to the connecting portion of the holding member, the  
 rail including an interior holding surface.

\* \* \* \* \*